



The Mini Page

Betty Debnam, Founding Editor and Editor at Large



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Engineers Week

Making Our Lives Better

Have you ever played with building blocks, such as Legos? Have you built houses or roller coasters with a computer program?

As you were building, you might not have realized how much thinking you were doing. You were answering questions about your project, such as:

- How many rooms would your building need?



- How would your roller coaster gain enough energy to get up the next hill?

- How big could a Lego bridge be without falling down?



These are the types of questions that engineers answer every day.

Engineers Week

Feb. 15-21 is Engineers Week. Also, Thursday, Feb. 19, is Introduce a Girl to Engineering Day. With this issue about engineering, The Mini Page salutes the people who contribute so much to our daily lives.

Engineers are everywhere



Mechanical and structural engineers might be building the next highest or fastest roller coaster. They have to work within the available space in the park and make sure the design is safe.

work together on these problems. Maybe one day you'll help solve them.

Engineering is using imagination and technology to solve a problem. Some engineers figure out how to build things. Others invent and design ways to make existing things work better.

President Barack Obama has set some new goals for our country. Many of his administration's ideas will require the work of engineers.

The National Academy of Engineering is a group that gives the government advice about important issues in engineering. This group has named 14 engineering **challenges**, or problems, facing us in the coming years.

Let's look ahead at a few of these challenges. We'll also name some of the types of engineers who might

- **Restore and improve urban infrastructure.**

Infrastructure includes water and sewer systems, roads and bridges, and electrical and natural gas **grids**.*

In many **urban** areas, or cities, these systems are in bad shape. The growing number of people in our cities has put a lot of stress on our infrastructure.

Engineers will try to find new types of construction that will last longer and work better. They'll try to build bridges and roads that include more green spaces.

- *Civil engineers* • *Mechanical engineers*
- *Environmental engineers*
- *Structural and transportation engineers*

*Grids are the wires and pipes that carry electricity and natural gas to businesses and homes.



Electrical engineers work on a civil engineering project that will help bridges be more stable during earthquakes.

all photos courtesy National Engineers Week Foundation

Why Be an Engineer?

Kids give many answers to the question "What do you want to do when you grow up?" Some of their answers include:



- Work outside.
- Work with other people.
- Help people in need.
- Help animals.
- Work with computers.
- Help save our environment.

Engineering touches us all

Almost anything you touch has been designed or built by an engineer, from your family's car to the zipper on your coat.



Someone had the idea for everything we use. Engineers take those ideas and plans and make them into real products or structures that we depend on.

What kind of engineer would you like to be? Why? What subjects in school would help you prepare for that job?

Meet Rolana Harris



Engineer Rolana Harris lives in Atlanta. Her job in process engineering allows her to be flexible so she can spend time with her family.

Rolana Harris studied chemical engineering in college. She also has a master's degree in industrial engineering.

The Mini Page talked to Rolana about her education and her job.

Rolana designs equipment for chemical manufacturing plants. She is called a **process engineer**. She designs machines such as pumps, heat exchangers to make chemicals hotter or colder, and pipelines to move materials.

"I always had a passion for math and science, and they came easily to me," Rolana said. "My high school chemistry teacher suggested that I might want to think about engineering."

While Rolana was in college, she also worked for engineering companies to find out what she liked and didn't like.

The Mini Page asked Rolana what she would like to tell kids about engineering.

"Engineering opens opportunities for you even if you choose to do something else," Rolana said. "It lets employers and others know that you're a problem-solver."

"Anything you walk by in a mall or that's in your room, engineers have had their hands on in some way," she said.

A great career for girls

Thursday, Feb. 19, is Introduce a Girl to Engineering Day. This special day was started in 2001. People in the engineering profession realized that more boys than girls were becoming engineers. They wanted to show that engineering is a great field for everyone.

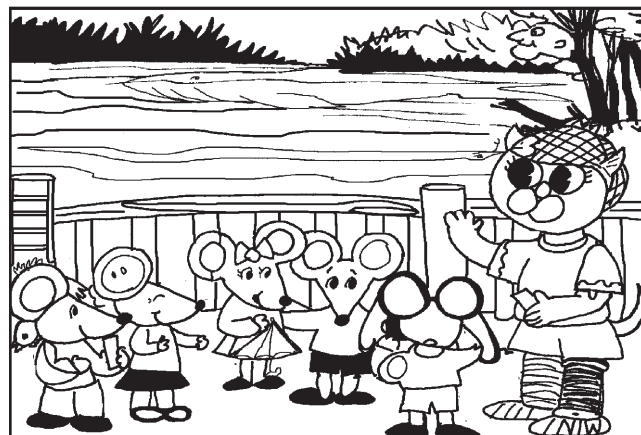


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Mini Spy ...



Mini Spy and her friends are admiring a bridge in the park. See if you can find:



- word MINI
- fish • bell
- spool of thread
- teapot
- funny face
- spoon • lips
- whale
- eyeglasses
- ladder
- umbrella
- letter C
- button • snake
- chicken
- number 8



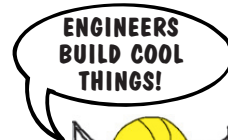
Basset Brown
The News
Hound's

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Engineers

TRY 'N
FIND

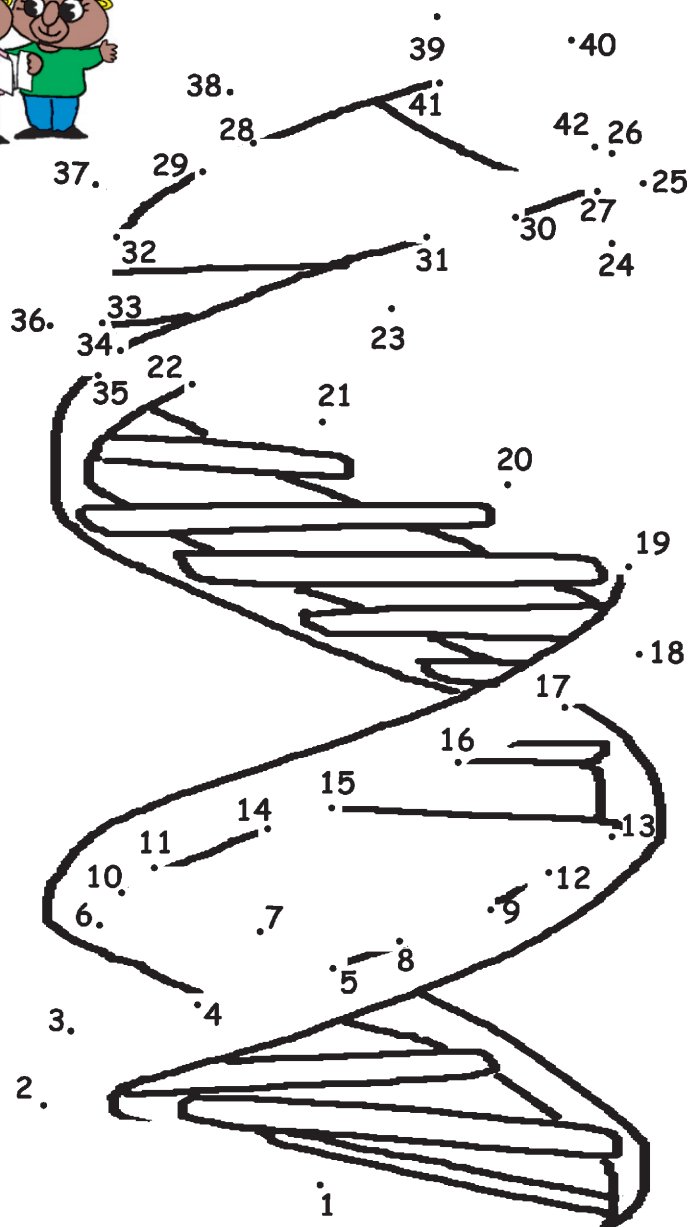
Words that remind us of engineering are hidden in the block below. Some words are hidden backward or diagonally, and some letters are used twice. See if you can find: BUILD, SOLVE, TECHNOLOGY, GOAL, CHALLENGE, ENERGY, ENGINEER, INFRASTRUCTURE, URBAN, CIVIL, GRID, NEW, MEDICINE, CHEMICAL, WATER, HELP, MATH, SCIENCE, CAREER, INTERNET, TEACHING, SOLAR.



ENGINEERS
BUILD COOL
THINGS!

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S | C | K | V | C | Y | G | O | L | O | N | H | C | E | T |
| C | H | E | M | I | C | A | L | P | L | E | H | N | E | E |
| I | A | N | A | V | R | A | L | O | S | W | I | N | B | A |
| E | L | G | T | I | R | E | E | R | A | C | R | E | U | C |
| N | L | I | H | L | C | J | H | T | I | E | V | G | I | H |
| C | E | N | A | B | R | U | E | D | T | L | R | Z | L | I |
| E | N | E | R | G | Y | R | E | N | O | I | K | D | D | N |
| J | G | E | W | Q | H | M | I | S | D | V | L | A | O | G |
| Z | E | R | U | T | C | U | R | T | S | A | R | F | N | I |

Go dot to dot and color this strand of ____.



Answer: DNA

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Rookie Cookie's Recipe Baked Cauliflower

You'll need:

- 1 head cauliflower, chopped into 1-inch pieces
- 3 tablespoons butter, melted
- 1/4 cup parmesan cheese
- 1/2 cup bread crumbs
- 1/2 cup reduced-fat shredded cheddar cheese

What to do:

1. Cut the cauliflower into 1-inch pieces.
2. Place in 1 inch of water and microwave on high for 5 minutes.
3. Meanwhile, combine melted butter, parmesan cheese and bread crumbs in a small bowl.
4. Drain water from cauliflower; place in a medium-sized baking dish.
5. Spoon bread crumb mixture over top of the cauliflower. Top with shredded cheddar cheese.
6. Bake at 350 degrees for 20 to 25 minutes.

**You will need an adult's help with this recipe.*

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Meet Kyla Pratt



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Kyla Pratt plays Heather in the movie "Hotel for Dogs." She has acted in several other movies, including the Dr. Dolittle movies, "Fat Albert," "Barney's Great Adventure" and "The Baby-sitter's Club."

She starred in the Disney TV movie series "Proud Family." She has appeared in many other TV shows, including "Touched by an Angel," "Smart Guy," "A Walton

Easter" and "Moesha." She has also appeared in TV commercials.

Kyla, 22, was born in Los Angeles. She lives there now and is attending college. She loves singing, dancing and bowling. She supports several charities, including the Boys & Girls Club.

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MIGHTY
FUNNY'S

Mini Jokes

All the following jokes have something in common.
Can you guess the common theme or category?



Elliot: What kind of tool do you need to fix a broken ape?
Erin: A monkey wrench!

Ernest: What did the gorilla say when his sister had a baby?

Erica: "I'll be a monkey's uncle!"



Ellen: What did the gorilla say when it dialed the wrong number?

Ennis: "King Kong ring wrong!"

More Engineering Challenges

Here are more of the National Academy of Engineering's challenges for the 21st century.



A professor of mechanical engineering researches "smart" implants for facial bones, teeth and hearts, such as artificial valves.

• Make better medicines.

Scientists have learned that people who get the same illnesses may have different symptoms. They also may respond differently to medicines.

Engineers will study ways to **personalize** medicine, or make it work better for each individual person. First they'll have to figure out a way to more easily and quickly look at a person's medical history.



Other engineers may work on a method of finding exactly what kind of germ is making a person sick, so doctors can treat only that germ.

- Biomedical engineers
- Computer engineers
- Chemical engineers
- Industrial engineers

The Mini Page thanks the National Engineers Week Foundation for help with this issue.

Next week, The Mini Page celebrates African-American History Month.

• Secure cyberspace.

We do much more with computers and the Internet than we did just 10 years ago. We buy things and look up information. Adults use the Internet for things like banking and paying taxes.

Computers help members of our military keep in touch, and our national and local governments use them in times of emergency.

The more we work in cyberspace, the more important it is to protect information stored there.

Engineers are working to design more secure software programs. They are developing ways to keep information safe as it travels from one place to another.

- Software engineers
- Mechanical engineers



Solar panels power a station in New Mexico that measures earthquake activity.

• Make solar energy economical.

We already use the sun's energy to make electricity. But today's **solar cells**, which collect that energy, convert only about 10 percent to 20 percent of the energy into electricity. Engineers will try to increase the amount of electricity that can be produced and find a way to store it for times when the sun is not shining.

- Electrical engineers
- Chemical engineers
- Mechanical engineers
- Environmental engineers



A volunteer with Engineers Without Borders works with students from St. Louis University and local residents in Belize to build a pipeline to deliver clean, disease-free water to schools and homes.

• Provide access to clean water.

About one out of every six people living today doesn't have clean water to drink. This leads to disease, particularly among children.

Some of the **contaminated**, or unsafe, water is caused by humans polluting the water sources. In some places, natural poisons are in the groundwater.

Engineers are working on better, more affordable ways to remove salt from seawater so that it can be used for drinking. They're also designing ways to recycle wastewater with better sewage treatment plants. Another idea is to cut down on water usage, mostly in the watering of crops.

- Agricultural engineers
- Bioengineers
- Environmental engineers


Sites to see:

www.eweek.org/site/News/Eweek/3Cheers.pdf
www.discoverengineering.org

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Read all about
engineers



in

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by Betty Debnam

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(Note to Editor: Above is camera-ready, one column-by-3 1/2-inch ad promoting Issue 7.)

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**Standards Spotlight:
Making Our Lives Better**

Mini Page activities meet many state and national educational standards. Each week we identify standards that relate to The Mini Page's content and offer activities that will help your students reach them.

This week's standards:


- Students understand the abilities of technological design. (Science: Science and Technology)
- Students develop abilities of technological design, understanding about science and technology, and abilities to distinguish between natural objects and objects made by humans. (Science: Science & Technology)

Activities:

1. Make a set of engineering trading cards. Select five different kinds of engineers in today's Mini Page. Write the name of the engineer on one side of a 3-by-5-inch card. On the other side, paste a newspaper picture that shows the kind of work that engineer might do.
2. Make a list of the different engineers shown in today's Mini Page. Then interview friends and family members. Ask each person what kind of engineer he or she finds the most interesting. Have them tell you why they made that choice.
3. Find five newspaper pictures of different kinds of structures, such as a building or highway. Paste the pictures on a piece of paper. Put a star next to the picture of the structure you think was the most difficult to design. Put a check by the picture of the structure that was the easiest to design. Discuss your choices with a family member.
4. What type of engineer might work with (a) transportation, (b) home construction, (c) lakes and rivers, and (d) medicine?
5. Use resource books and the Internet to learn more about a specific type of engineer. Use these questions to guide your research: What type of courses would the engineer take in college? Where would that engineer work? What do you think would be the hardest part of the job? If you wanted to be that kind of engineer, what type of part-time work or summer job could you do that would give you some experience in that field? Write a paragraph discussing your research.


(standards by Dr. Sherrye D. Garrett, Texas A&M University-Corpus Christi)

(Note to Editor: Above is the Standards for Issue 7.)

TM

Goldie Goodsport's Report
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Supersport: Megan Hodge



Birthdate: 10-15-88 **Birthplace:** U.S. Virgin Islands
Hometown: Durham, N.C.

Megan Hodge rises gracefully above the net, and with perfect timing, slams the ball beyond opponents' reach. The Penn State junior recorded 470 of those "kill" shots this season while leading the Nittany Lions women's volleyball team to a 38-0 record and their second straight national championship.

Hodge, called one of the premier outside hitters in the country by coach Russ Rose, also captured the NCAA finals Outstanding Player award for the second year in a row.

Before achieving fame at Penn State, where she plans to major in business, the 6-foot-3 Hodge won Gatorade National High School Player of the Year. While in high school, she also served as a peer for students with special needs.

As athletics go, Hodge has volleyball genes. Her father (Michael) and mother (Carmen) both played in college and on the Virgin Islands national team.

While racking up points and titles for PSU is a priority, Megan Hodge looks beyond the court. Her list of favorites includes hot fudge brownies, the Boston Celtics, and athletes Dwayne Wade and Kevin Garnett.

Meanwhile, Hodge is a favorite on the volleyball court and keeps the Nittany Lions fans roaring with delight.

(Note to Editor: Above is copy block for Page 3, Issue 7, to be used in place of ad if desired.)

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